

# A Patient - Record supporting approximate Treatment Cost Determination

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**Abstract:** The aim of this project was the development of a simple Patient Record Tool, supporting health-care professionals to assign appropriate disease codes, related to financial and billing data, indispensable for an approximation of the mean treatment cost.

**Keywords:** Hospital Cost, Medical Record, Coding.

**Background information:** Operational realities are gradually challenging the existing structures and processes involved in patient care delivery. At the same time, expenses are increasing dramatically, partially due to the high cost of Medication and Biomedical Technology. Documenting medical necessity is an area that needs significant improvement, especially in countries like Greece, where there is a remarkable controversy between the relatively high quality of Medical Services offered by the Public Hospitals, and the rather unfortunate way these Services are managed. The aim of this project was the development of a simple Patient Record Tool, supporting health-care professionals to assign appropriate disease codes, related to financial and billing data, indispensable for an approximation of the mean treatment cost.

**Methodology:** Medical records are used in a variety of ways and they serve a multiplicity of purposes, including even the allocation of resources. Therefore, we structured our system upon the Medical Records, starting from the Greek translation of the ICD-10, Vol. I-II, and a three-level in vitro laboratory test Classification. The developed system allows for every user, first, to select one or more out of 37 discrete medical specialties. Second, to set up a custom-made menu of available diagnostic and treatment activities out of the ones contained in the system. Finally, to individually rate them, according to pre-calculated prices.

**Results:** The developed program loads a root prototype database that figures out about 3334 medical instances. These medical instances are classified within 134 subcategories defined in ICD-10. This classification covers 37 Hospital Departments. From this root database, the user is able to select, to add, to edit, and to delete categories and medical instances, by folder, by department and by description. Once the modified database for local Hospital purposes has been created, the program constructs a tailor-made SQL server file, appropriate

for local Hospital Unit administrative use. The user can interactively modify any description on this database or add information about specific instances.

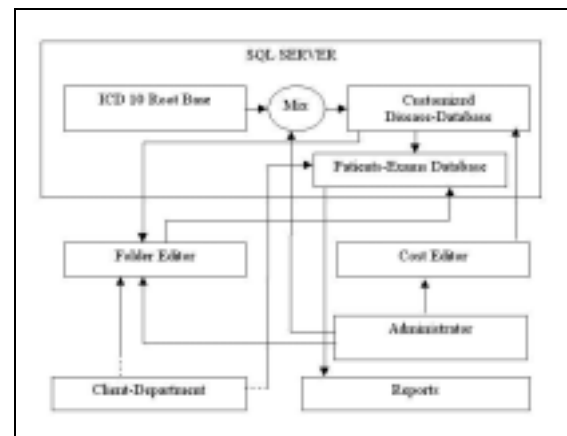


Fig. 1: Functional Diagram of the System.

This interactively modified database, which has as initial source the ICD-10, is further used to create a typical Patient-Record that contains the necessary registration information. The record allows for the selection of the appropriate examinations and other medical actions and combines each of them to a predefined "cost". The system allows for the introduction and/or the verification of Patients' Insurance Data, through a Patient Record Editor. Data input can be performed individually or in a batch mode, according to the circumstances. A first order rough approximation for the price-data, can be based upon last year mean values, of human and material resources consumption that can be more or less easily calculated, for each hospital department, laboratory or unit.

**Conclusions:** The employment of this method enables the formation of a medical record, that is intrinsically, however latent, related to the costs caused and the expected reimbursement. Thus, the updating of the patient's relevant medical data, ignites when relevant, the corresponding updating of an implicitly associated financial record, that allows for, both, a good approximation of the individual "case" cost, as well as, the follow-up of the department's cost evolution. The system, presently employed within a virtual hospital environment, if fed with appropriate information can result in reliable cost related data, also useful for DRGs applications.